ORIGINAL ARTICLE

Determination of Frequency of Stroke Patients with Delayed Hospital Presentation and Causative Factors

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ABSTRACT

Background: Clinical and experimental evidence suggests that the interval between stroke onset and the commencement of either thrombolytic or neuroprotective therapy is likely to be a major determinant of outcome. Most potential therapy for stroke need to be employed within a few hours of stroke onset and several authors have suggested that delay in arriving at hospital is a major factor limiting the use of new stroke therapies.

Aim: To determine frequency of factors that influence delay in hospital arrival of patients with stroke.

Study design: Cross sectional survey

Settings: Department of Neurology Services Hospital, Lahore

Methods: A total of 110 patients fulfilling the inclusion criteria from medical emergency department of Services Hospital Lahore were enrolled after informed consent from the patient or his/her attendant. Demographics like name, age, gender and address were noted. Patient or his/attendant was asked about level of education of patient, mode of transport, first consultation with GP, Low Threat perception about the stroke symptoms and Awareness of the importance of seeking immediate medical help.

Results: The results of the study reveal majority of the cases between 51-70 years of age i.e., 43(39.09%), mean and sd was 56.76±4.29years, 57(51.82%) were male and 18(48.53%) females, frequency of delay in hospital arrival of patients with acute stroke was 81(73.64%), frequency of factors that influence delay in hospital arrival of patients with acute stroke reveals 27(33.33%) had illiteracy, 19(23.46%) used public/private transport, 57(70.37%) had first consultation with GP, 21(25.93%) had low threat perception about the stroke symptoms while 24(29.63%) had unawareness of the importance of seeking immediate medical help.

Conclusion: We concluded that still a significant number of patients with acute stroke arrive late in hospital and majority of them come with factors that influence in delay like illiteracy, using public/private transport, first consultation with GP, low threat perception about the stroke symptoms and awareness of the importance of seeking immediate medical help.

Keywords: Acute ischemic stroke, delay in arrival, factors influencing in delay, illiteracy

INTRODUCTION

Stroke is the most frequent neurological disorder, and the most common cause of severe disability compared to other diseases[1]. Worldwide, stroke is responsible for 10% of all deaths, and by 2030, it will become the fourth leading cause of disability (currently, it is the sixth leading cause)[2]. Acute therapies for stroke, such as tissue plasminogen activator (tPA) was approved more than 10 years ago[3].

To evaluate emerging therapies for stroke, it is critical to be able to recruit patients within a few hours from onset of symptoms. This interval, the "therapeutic window," is considered to be within 3 to 4 hours for clinical trials testing thrombolysis. Thus, in almost all clinical trials the inclusion criteria involve

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the interval between the onset of symptoms and the time of arrival in the hospital[4]. Several studies investigating the delay in hospital arrival time after stroke have been published[5]. Most patients do not arrive to the hospital in timely manner and cannot be considered for time-dependent therapies[6]. Pre-hospital delay continues to contribute the largest proportion of delay time[7]. Public awareness and education regarding medical and paramedical services are necessary for the best early management[8]. In previous study only 28.5% patients reached within the therapeutic window and 71.5% patients presented after that[5]. Different studies studied different factors associated with delay in presentation like level of education of patient (Literate 62.4%, illiterate 37.6%), mode of transport (ambulance users 27.9%, public/private transport 72.1%), first consultation with GP 63%, Low threat perception about the stroke symptoms (32.1%), lack of Awareness of the importance of seeking immediate medical help (33%)[5,9,10].

The rationale of this study is that there is a lot of work has been done internationally on the factors influencing delay in presentation for acute ischemic stroke but I could find only a single study in our population that was intended to find out the delaying factors. So I want to re–evaluate it in our population as our population dynamics are different from other countries in the world. In doing so I may be able to find some specific modifiable factors so that time dependent therapy could be given and there would be a reduction in morbidity and mortality in patients with acute ischemic stroke.

MATERIALS AND METHODS

This cross sectional survey was carried out in the Department of Neurology Services Hospital Lahore from 20th April to 19th October. Sample size of 110 cases was calculated with 95% confidence level, 9% margin of error and taking expected percentage of Low Threat perception about the stroke symptoms i.e., 32.1% in patients. Sampling technique non probability, purposive was used. Patients of both gender between 18 - 80 years of age and diagnosed patients of acute ischemic stroke presenting after 4.5 hours from onset were included in the study.

Exclusion Criteria:

1. Intra-cerebral hemorrhage(excluded by CT Scan Brain Plain)
2. Subarachnoid hemorrhage(excluded by CT Scan Brain Plain)
3. Lesion-negative transient ischemic attack (TIA) (excluded by CT Scan Brain Plain)
4. Patients who had been treated by thrombolysis before visiting our hospital.
5. Diagnosis other than stroke like space occupying lesion, demyelinating diseases(excluded by CT Scan Brain Plain)
6. Head Injury
7. Patients with subdural hematomas(excluded by CT Scan Brain Plain)

Patients fulfilling the inclusion criteria from medical emergency department of Services Hospital Lahore were enrolled after informed consent from the patient or his/her attendant. Demographics like name, age, gender and address were noted. Patient or his/attendant was asked about level of education of patient, mode of transport, first consultation with GP, Low Threat perception about the stroke symptoms and Awareness of the importance of seeking immediate medical help. This data was collected by a self designed proforma. Data was entered and analyzed by SPSS version 10. Mean +/- SD was calculated for quantitative variables like age. Frequencies and percentages were calculated for qualitative variables.

RESULTS

A total of 110 cases fulfilling the inclusion/exclusion criteria were enrolled to determine the frequency of factors that influence delay in hospital arrival of patients with acute stroke. Age distribution of the patients was done which shows majority of the cases were between 51-70 years of age i.e., 43(39.09%) while 11(10%) were between 18-30 years, 37(33.64%) were between 31-50 years and 19(17.27%) were between 71-80 years of age, mean and sd was calculated as 56.76±4.29years (Table 1).

Gender distribution of the patients was done and presented in, where 57(51.82%) were male and 53(48.18%) females.

Frequency of delay in hospital arrival of patients with acute stroke was recorded in 81(73.64%) while 29(26.36%) reached in-time (Table.2).

Frequency of factors that influence delay in hospital arrival of patients with acute stroke reveals 27(33.33%) had illiteracy, 19(23.46%) used public/private transport, 57(70.37%) had first consultation with GP, 21(25.93%) had low threat perception about the stroke symptoms while 24(29.63%) had awareness of the importance of seeking immediate medical help (Table 3).

Table 1: Age distribution of the patients (n=110)

Age (in years)	n	%age
18-30	11	10
31-50	37	33.64
51-70	43	39.09
71-80	19	17.27
Mean and sd	**56.76±4.29**	

Table 2: Frequency of delay in hospital arrival of patients with acute stroke (n=110)

Delay in hospital arrival	n	%age
Yes	81	73.64
No	29	26.36

Table 3: Frequency of factors that influence delay in hospital arrival of patients with acute stroke (n=81)

Factors influence in delay arrival	n	%age
Illiteracy	27	33.33
Public/Private Transport Users	19	23.46
First consultation with GP	57	70.37
Low Threat perception about the stroke symptoms	21	25.93
Lack of Awareness of the importance of seeking immediate medical help	24	29.63

DISCUSSION

Clinical and experimental evidence suggests that the interval between stroke onset and the commencement of either thrombolytic or

neuroprotective therapy is likely to be a major determinant of outcome. At present there are no acute stroke therapies licensed for use internationally, but thrombolysis has become standard therapy in many countries and there are several neuroprotective agents in late phase of development. To have a significant impact upon patients' health, any new treatment must be widely applicable. Most potential therapy for stroke need to be employed within a few hours of stroke onset and several authors have suggested that delay in arriving at hospital is a major factor limiting the use of new stroke therapies[11,12].

We planned this study considering that a lot of work has been done internationally on the factors influencing delay in presentation for acute ischemic stroke but only a single study in our population was done to find out the delaying factors. So we intend to re–evaluate it in our population as our population dynamics are different from other countries in the world.

The results of the study reveal majority of the cases between 51-70 years of age i.e., 43(39.09%), mean and sd was 56.76±4.29years, 57(51.82%) were male and 53(48.18%) females, frequency of delay in hospital arrival of patients with acute stroke was 81(73.64%), frequency of factors that influence delay in hospital arrival of patients with acute stroke reveals 27(33.33%) had illiteracy, 19(23.46%) used public/private transport, 57(70.37%) had first consultation with GP, 21(25.93%) had low threat perception about the stroke symptoms while 24(29.63%) had awareness of the importance of seeking immediate medical help.

The findings of the study are in agreement with other studies recorded level of education of patient(Literate 62.4%, illiterate 37.6%), mode of transport (ambulance users 27.9%, public/private transport 72.1%), first consultation with GP 63%, Low threat perception about the stroke symptoms (32.1%), Awareness of the importance of seeking immediate medical help(33%)[5,9,10].

Although most of the patients or families expressed the understanding of the emergent need to send the patients for help, there were still a high percentage of the patients who arrived between 2-48 hours. The possible delay can be explained by the ate recognition of the symptoms of stroke. No matter who decided to seek medical attention, patients tend to arrive late at hospitals. Cultural factors and lack of knowledge about stroke were possible causes. In our country, many people especially the elderly, are reluctant to seek medical attention unless being advised. Patients or family members often think that the symptoms might go away by themselves. Also, our results did not suggest that the experiences from previous stroke or family history of stroke contributed to minimize the delay in arriving ED earlier.

However, the findings of the study enabled us to identify some specific modifiable factors which may be controlled so that time dependent therapy could be given and there would be a reduction in morbidity and mortality in patients with acute ischemic stroke.

CONCLUSION

We concluded that still a significant number of patients with acute stroke arrive late in hospital and majority of them come with factors that influence in delay like illiteracy, using public/private transport, first consultation with GP, low threat perception about the stroke symptoms and awareness of the importance of seeking immediate medical help.

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